INSTITUTE OF PUBLIC HEALTH

COLLEGE OFMEDICINE AND HEALTH SCIENCE

UNIVERSITY OF GONDAR

ASSESENMENT OF IMMUNIZATION COVERAGE AND ASSOCIATED FACTORS AMONG CHILDREN 12-23 MONTHS AGE IN LAY ARMACHEHO DESTRICT, NORTH GONDAR ZONE, NORTH WEST ETHIOPIA.

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Assessment of Immunization Coverage and Associated Factors in Lay Armachiho District, North Gondar Zone, North West Ethiopia.

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TABLE OF CONTENTS

Table of Contents

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

BCG	Bacilli-Calmette-Guerin
DPT	Diphtheria,Pertussis,Tetanus
EDHS	Ethiopia Demographic Health Survey
EPI	Expanded Program on Immunization
GAVI	Global Alliance for Vaccine and Immunization
GIVS	Global Immunization Vision Strategy
HF	Health Facility
HSDPIV	Health Sector Development Program Four
MDG	Millennium Development Goal
NGO	Non-Governmental Organization
OPV	Oral Polio Vaccine
PCV	Pneumococcal Conjugate vaccine
UCI	Universal Childhood Immunization
UNICEF	United Nation Children's Found
WHO	World Health Organization

ABSTRACT

Introduction: Immunization coverage refers to information on the proportion of children who have received specific vaccine or are up to date with the recommended vaccines schedule.

Objective: The objective of this study was to assess immunization coverage and associated factors in Lay Armacheho District, North Gondar zone, North West Ethiopia.

Methods: A community based quantitative cross-sectional study was conducted from March 20-30/2014 among 751 pairs of mothers to children aged 12-23 months old in Lay Armacheho District. Two stage sampling techniques were employed. Bivarite and multivariate analysis was carried out to compute relevant association between factors and fully immunization status of children. All variables that were found to be significant at p value 0.2 in the bivarate analysis was entered in to multiple logistic regression model. Finally back ward stepwise regression method was used and those variables significant at p value 0.05 was considered statistical significance.

Results: About 76% of the children were fully immunized based on vaccination card and mothers recall during the study period. About 85.5% of the children took OPV1 vaccine followed by BCG 81.4%.Dropout rate was 5.2% for BCG to measles, 2.7% for Penta1 to Penta3 and 4.5% for PCV1 to PCV3.

The likelihood of children to be fully immunized among mothers who know the number of sessions needed for vaccination were higher than those who did not know [AOR=2.816(95%C1=1.898,4.178)]. Moreover, coverage of full immunization status of children were higher among mothers who know the age at which the child become fully immunized than who did not know. [AOR=2.934(95%CI=2.020, 4.262)]. Mothers who took TT immunization showed that there was statistically significant association with children full immunization [AOR 1.669(95% CI=1.061, 2.628)]. Urban children were more likely to be fully immunized than rural [AOR=1.824(95%CI=1.150, 2.895)] and Being male were more likely fully immunized than female [AOR=1.818(95%CI=1.267, 2.608)].

Conclusion and Recommendation: Vaccination coverage was lower than the targets set by WHO and UNICEF. Hence, it is important to maintain and increase current vaccination level. Health development army should promote women awareness at household level on TT immunization, when the childe start vaccination, number of sessions needed, when children become fully immunized and rural residence should be supervised and monitored strictly in routine and supplement immunization activities.

1. INTRODUCTION

1.1. Statement of the problem

Immunization coverage refers to information on the proportion of children who have received specific vaccine or are up to date with the recommended vaccines schedule. In Ethiopia vaccination is given on routine and outreach bases. The routine vaccination services are given starting from birth, should be completed before one year of life by all children.BCG and OPV0 are administered at birth, while three dose of OPV, Pentavalent, Rota1and 2 and PCV vaccines are given at interval of four week duration at 6, 10 and 14 week and measles vaccine is given at the age of nine month and a child is side to be fully vaccinated if he/she received all vaccines. If the children not start immunization at birth the first dose will be given a 6^{th} week(1, 2).

Since the Expanded Programme on Immunization commenced in 1974, the widespread use of vaccines has substantially reduced vaccine-preventable disease morbidity and mortality worldwide; however, large numbers of children are not being fully vaccinated(1).The WHO recommends vaccine including diphtheria, tetanus, pertussis, HepB, invasive Hib disease, and measles for all children, and against pneumococcal disease, and rotavirus disease for children in some areas as part of their EPI. But many infants and children still die every year from these diseases. In 2011 nearly 107 million infants (83%) worldwide received at least 3 doses of DTP vaccine. However, approximately 22.4 million failed to receive 3 doses leaving large numbers of children susceptible to vaccine-preventable diseases and death. As a result 2–3 million children are dying annually and become ill(3).

In 2011 WHO estimated global DPT3 coverage among aged<12months was 85% ranging from 71% in African region to 96% in west pacific region and representing 106.8 million vaccinated(4).Although substantial progress continues to be made, many children especially those in less developed countries remain at risk for vaccine

preventable disease and achieving high and equitable coverage remains a challenge in low income countries like Ethiopia(3, 5, 6)

In Ethiopia immunization is one of the national child survival strategies in the country to reach DPT3/Measles coverage 90% in 2010.However about 1 million children were estimated to be unvaccinated and nearly 16% under five mortality has been attributed to vaccine preventable disease(1).Immunization is the key to achieving the millennium development goals (MDG) especially to reduce the child mortality and proportion of children immunized against measles is one of the indicators of health MDG4 for decreasing the child mortality and morbidity from measles. But in Ethiopia the incidence of measles has increased from 3.19/100,000 (1964 confirmed cases) in 2009 to 7.35/100,000 (3121 confirmed cases) in 2010(1).

According to EDHS 2011 Overall 24 percent of children ages 12-23 months were fully vaccinated at the time of the survey. While this represents a 19 percent increase from the level reported in the 2005 EDHS, the percentage of children who are fully vaccinated remains far below the goal of 66 percent coverage set in the HSDP IV. There is a wide variation among regions in full vaccination coverage ranging from 79 percent in Addis Ababa to 9 percent in Afar(7). .

Globally, Factors associated with under vaccination might be different from those associated with no vaccination(3).For improvements in global vaccination coverage to occur, multifaceted and tailored strategies will be required by countries to address factors contributing to incomplete infant vaccination, particularly in countries with the largest numbers of unvaccinated children. In Ethiopia low access to services, inadequate awareness of caregivers, missed opportunities, vaccination time is in convenient, vaccination site is far, fear of side effect and high dropout rate are major factors contributing to low immunization coverage(1, 4, 8).

To prevent the development of vaccine preventable disease achieving and maintaining high level of immunization coverage must therefore be a priority for all health systems through different approaches to enhance vaccination coverage(3).

1.2. Literature review

1.2.1. Immunization coverage

Globally, immunization coverage has greatly increased since WHO expanded program on immunization begin in 1974.for increasing childhood immunization coverage the Universal childhood immunization(UCI) and GAVI invest a lot of resources and have got good achievement(9).

In 2010,130 (67%) countries had achieved 90% DPT3 coverage and an estimated 85% of infants worldwide had received at least 3 dose of DPT vaccines. However 19.3 million children were not fully vaccinated and remarkably at risk of vaccines preventable of morbidity and mortality (3). In 2011 WHO estimated global coverage with the recommended vaccines was 88% for the bacilli Calmette-Guérin vaccine (BCG), 83% for third dose of diphtheria-tetanus-pertussis vaccine (DTP), 84% for third dose of poliovirus vaccine (OPV), 84% for the first dose of measles containing vaccine, 75% for third dose of hepatitis B vaccine and 43% for third dose of *Haemophilus influenzae* type b vaccine. Of the 22.4 million children who had not received 3 doses of DTP during incompletely vaccinated children, 62% had never received the first dose of DPT vaccine (4).

In 2009 Demographic health survey in low and middle income countries on vaccination coverage of DPT3, polio3 and measles was all under 80%.Less than half of the children were fully vaccinated. In contrast all children have received at least one of the vaccination indicates that immunization services are available but incompletely utilized and delivered and these countries may be in adequate to meet the target set by WHO and UNICEF to achieve at least 90% vaccination coverage by 2015(10).

Across the Africa region there is variation on immunization coverage. A cross-sectional community based study conducted in Kenya, indicates that approximately 77% of the children were fully immunized and low immunization coverage remain a challenge in low income and high population setting. This study indicates high vaccination coverage compare with similar study conducted in Nigeria which is 61.9% of children fully immunized(2, 11).

Source of data for immunization coverage in Ethiopia are usually obtained from ministry of health and demographic health surveys. The demographic health survey 2011 indicates children aged 12-23 months vaccinated for BCG (66%), DPT3 (37%), measles (56%), fully vaccinated (24%) and 15% not received at least one EPI vaccine. This survey indicates there is a wide variation among regions in full vaccination coverage ranging from 79% in Addis Ababa to 9% in Affar .A similar household survey of four region of Ethiopia indicates pent1(84%),pent3 (64%) and measles (68%) high measles vaccination coverage than pentavalent3(7, 12).

Findings from household survey in 2011 and quarterly health bulletin in 2013 indicates that vaccination coverage of Ethiopia decline from 81.5% to 79.5% for measles and from 74.5% to 71.45% for full vaccination, While pentavalent3 was stable(13). Similar households' health survey showed there is huge variation in immunization coverage of Ethiopia across regional state. Full immunization ranges from lowest of 16.3% in six regional states to a highest of 82.5% Addis Ababa followed by Tigray region (60.8%). In Amhara region it was 26.7%(14)

1.2.2. Factors affecting immunization coverage

Various socio demographic and socio economic factors, individual characters and health system factors are related with immunization coverage of children(2, 15, 16). In 2012 World Health organization mortality and morbidity report indicates that Factors associated with under vaccination might be different from those associated with no vaccination(3).

1.2.3. Maternal characteristics

A cross-sectional study conducted in Ambo woreda, central Ethiopian in 2012 identified that antenatal care follow up, being born in the health facility, mother's knowledge about the age at which vaccination begins and knowledge about the age at which vaccination complete were predictors significantly associated with complete immunization(1).But residence (being urban and rural) and mothers socio-demographic characteristics (age of mothers, educational status, income, marital status, occupation of mothers were not

significantly associated. Study from another place contradict to this study, which indicates that socio-demographic factors of mothers like monthly family income was found to be predictors of complete immunization coverage (17).

Care takers knowledge and attitude toward vaccination and vaccine preventable disease which affects immunization coverage(16). Study done in rural Bangladeshi on factors affecting acceptance of complete immunization coverage of children under five years, showed that full immunization rate increased with an increase the educational level of mothers(18). Mothers who had primary, secondary and higher education were more likely to full immunize their children than these with no education(18). Study conducted in Kenya proportion of full immunized children was 42.9% for those with no formal education, 79.7% of mothers who have attained primarily school and 81.6% attained secondary and above school which is consistent result with Study in Ethiopia(1, 11).

Study done in rural Bangladesh, Burkina Faso and Kenya on immunization coverage of children aged 12-23months indicates that antenatal care, tetanus toxoid(TT) injection were significantly positively associated with children full immunization coverage(11, 19). In Bangladesh 70,9% of mothers who received sufficient antenatal care were fully immunized their children compare with 55% of mothers who did not receive antenatal care(18)

1.2.4. Availability and Accessibility of health service

Study done in Bangladesh and rural Ethiopia Dabat district indicated that distance and traveling time is another factors which affects immunization coverage(6, 18). Mothers of children's with few kilometers far from and who takes few minutes to arrive at the health centers and health post are more likely to complete the immunization and increase immunization coverage. Furthermore, it shows travel time to vaccine providers in health posts appeared to be a barrier to the delivery of infant vaccine and children live greater than 60 minutes from health post were significantly less likely to receive pentavalent3 vaccine compare to children <30 minutes from health post(6). Availability of vaccine,

cold chin and trained health workers served as a drivers of immunization coverage improvement(20).

1.2.5. Characteristics of the children

Study done in rural Bangladesh and Ethiopia showed that there was sex discrimination on immunization of children. These study revealed that male children were more likely to be fully immunized than females(1, 18).

Place of delivery and birth order of the child are another factors which affects children immunization. Study conducted in Nigeria and Kenya indicates children who was delivered in the health facilities was more likely to receive full immunization compare to one deliver at home (by self) or by traditional birth attendants. Living in communities with low proportion of mothers who had hospital delivery was associated with lower risks of full immunization compared to living in a community with high proportion of hospital delivery. This is an expected finding, given that community health services have been shown to be important correlates of health outcomes in developing countries(5, 21).Birth orders seems to be an important determinants of vaccination status of less than five years of children. This was probably associated with mothers being unable to cater adequately to the health needed of many children or even negligence(5, 18). Birth orders in larger families and greater than four having low vaccination uptake and first born children being more likely to be immunized on time than second born children. In contrast to this study from Ambo woreda central Ethiopia shows that birth order of children did not have statistical significant association with child immunization(1).

1.2.6. Reason for not fully immunized

Mothers/care takers have different reason for not immunized their children(17). These include parental lack of knowledge on benefit of immunization and immunization schedule, health facility related problems like(lack of vaccination supply and dilute) difficulties in accessing vaccination center because of distance, fear of side effects reason, maternal and child illness were identified in few studies(22, 23).

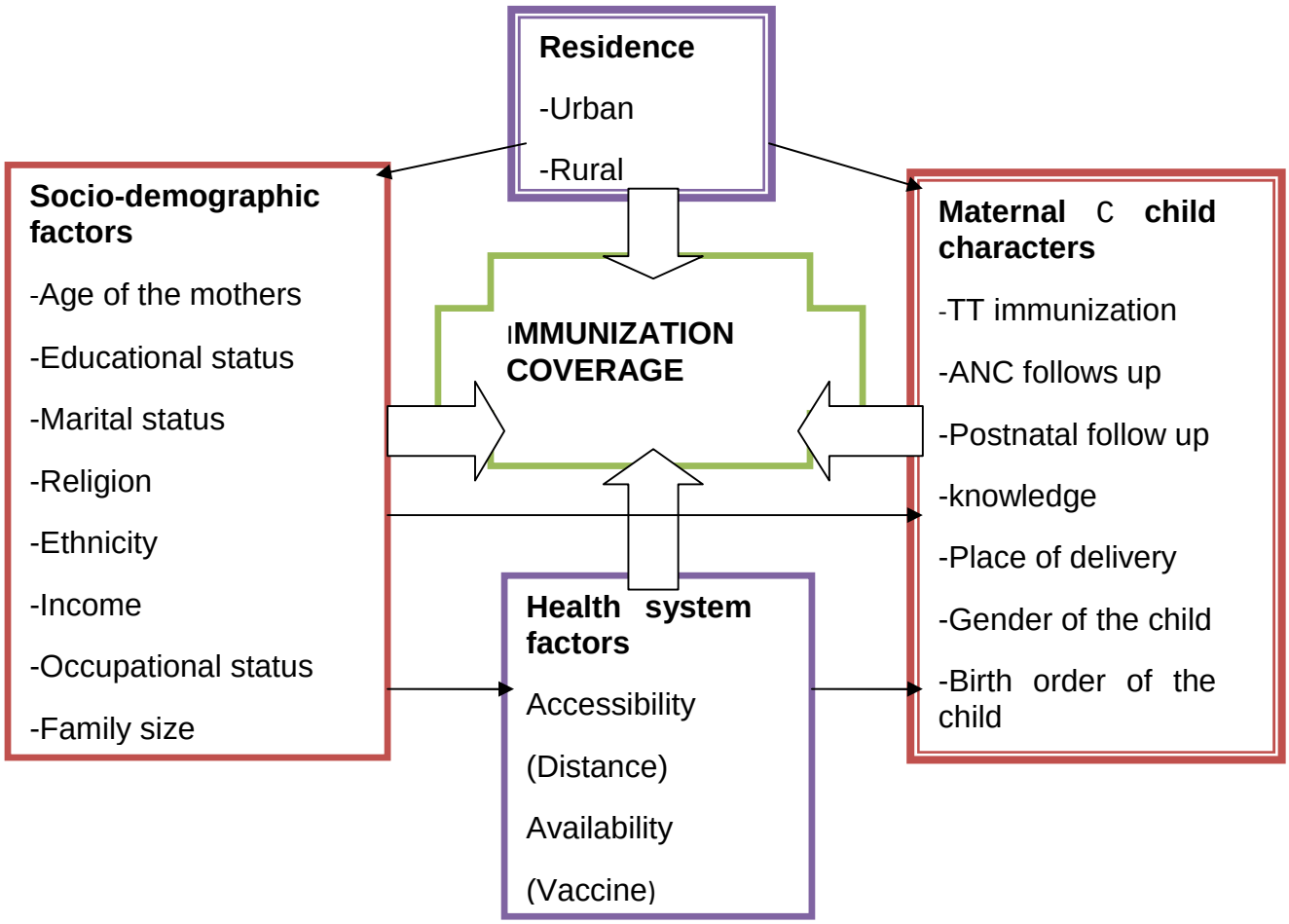

Figure-1. Conceptual frame work for the variables of the study(1, 24).

1.3. Justification

Vaccination coverage figures are generally available from administrative report which vary from one area to another area, however factors which affects vaccination coverage in different area were not well studied.

In order to define priority, plan and implement interventions that aim to improving vaccination coverage, service delivery, community based information about fully vaccination coverage and associated factors in the woreda is needed.

This study aimed at assessing level of immunization coverage and factors associated with fully immunization coverage. It provides evidence whether substantial progress towards achieving vaccination targets is being made.

Finally, this research will be important to determine evidence based strategies to improve immunization coverage which in turn reduce infants and child mortality and the finding will be an input for program managers at each level and this result will be incorporated when planning routine vaccination and supplementation immunization activities.

2. OBJECTIVES

2.1. General objective

The aim of this study was to assesses immunization coverage and identify associated factors among all pairs of mothers to children aged 12-23 months in Lay Armacheho District, North Gondar Zone, North west Ethiopia.

2.2. Specific objectives

1. To determine immunization coverage among all pairs of mothers to children aged 12-23 months.

2. To identify factors associated with immunization coverage among all pairs of mothers to children aged 12-23 months.

3. METHOD AND MATERIALS

3.1. Study design

Community based quantitative cross sectional study was conducted from March 20-30/2014.

3.2. Study area

Lay Armacheho district is found in the Amhara National regional state, North Gondar zone. The study area has one town kebele and thirty three rural kebeles. Tekele Dengay is the main town, which is 26 kilometers away from Gondar town. According to the data surveyed from projection 2006/2007, the total population of the district in 2014 is 178, 209(89,995 females and 88,214 males).The town has telephone service as well as 24 hour supply electricity. There are about eight health center, 34 health post of government health institutions, and eight private clinics of different levels and three drug venders which render health service for the community.

3.3. Source population and Study population

3.3.1. The Source population

Source population was all households of the study area having pairs of mothers to children aged 12-23 months.

3.3.2. Study population

Study population was all households in the selected Keble having pairs of mothers to children aged 12-23 months.

3.3.3. Study subjects

Study subjects were selected households having pairs of mothers to children aged 12-23 months.

3.4. Inclusion and Exclusion criteria

3.4.1. Inclusion criteria

Households having children 12-23 months of age and living within the kebele for minimum of one year were included in the study.

3.4.2. Exclusion criteria

Mothers/caretakers of young children who were critically/seriously ill and those children aged 12-23 months who came for temporal purpose and live less than one year in the given household were excluded.

3 .5. Sample size determination and Sampling procedure

3.5.1. Sample size determination

It was calculated based on fully immunization coverage(<1year) of EDHS 2011 which was 24% by using single population proportion formula with the following assumption 95% significant level, margin of error 5%(0.05) and 10% non response rate and design effect 2.

$n=Z^2P(1-P)/d^2*d$

where n=maximum sample size

p=24 %(full vaccination coverage from EDHS 2011)

d=0.05(desired precision)

Z=critical value at 95% confidence interval (1.96)

d=2(design effect)

$n=1.96^2X0.24X0.76X2/0.05^2$

=561

10% non response rate+561=617

Sample size for associated factors

variables	prevalence	Sample size
Knowledge of mother on vaccination	79.5%,	550
Health facility delivery	10%	304
ANC follow up	34%	757

Since sample size for single population proportion (617) is smaller than sample for associated factor of ANC follow up, the study sample size will be 757.

3.5.2. Sampling procedure

Two stage sampling technique was employed. At stage one from 34 kebele 20% of the kebele (6rural, 1urban) were selected randomly by lottery method. Then at the kebele level the individual household was selected using systematic random sampling technique. The sample interval of the households in each kebele was determined by dividing the total number of households to the allocated sample size. The sample size was distributed to each kebele proportional to the household size of the kebeles. The lists of all kebeles were taken from the administrative bodies of woreda and kebele. Children in the selected household were further selected. In case of two or more children in the same household, lottery methods was used to select only one. When no eligible children in the selected households, the next households were included in the study. For eligible participant who was not be found at home, the interviewers were revisit the HH three times at different time intervals and when the interviewers failed to get the eligible participant, the HH was registered as non response.

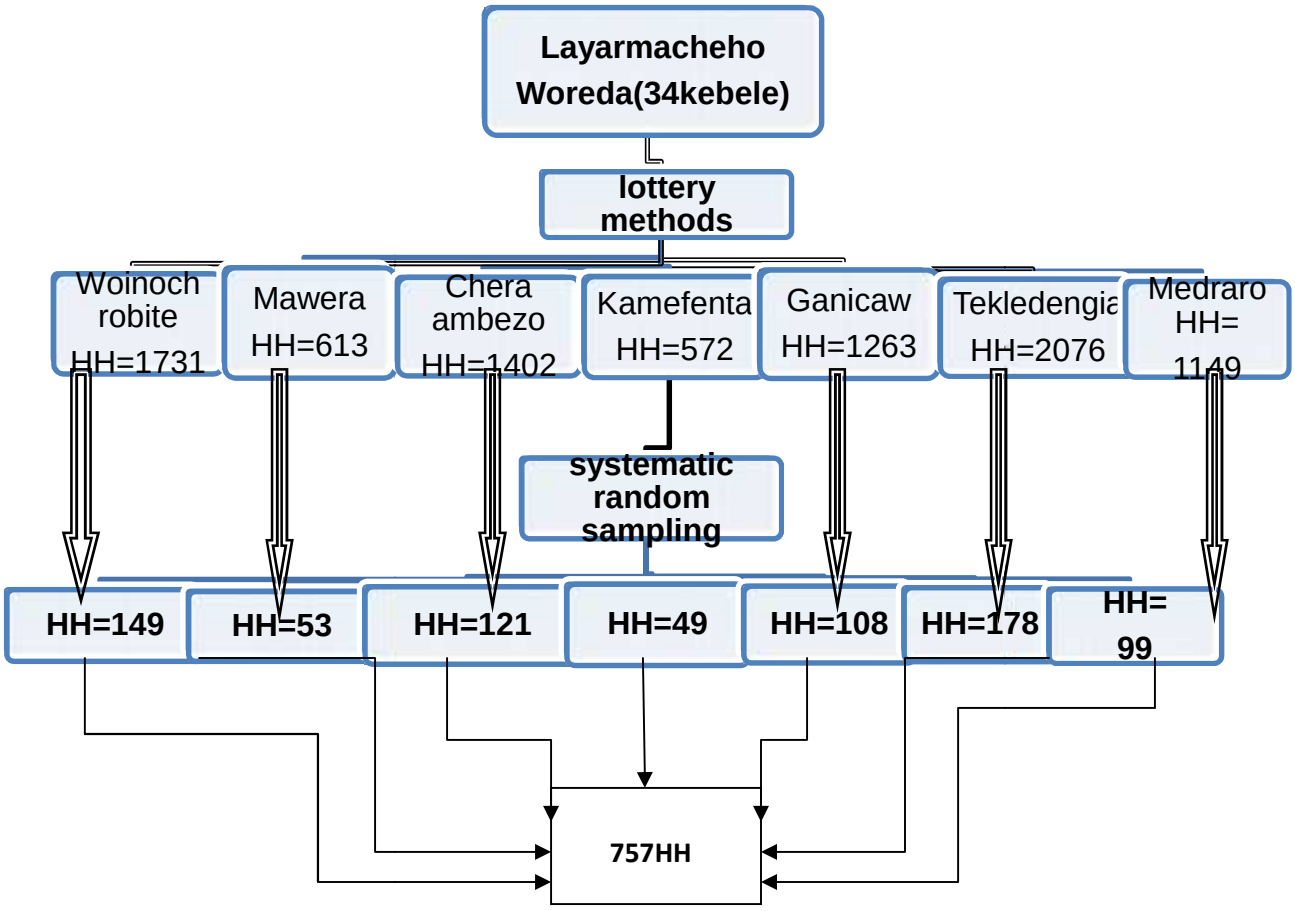

Figure-2: sampling procedure

3.6. Variables of the study

3.6.1. Dependent variable

Fully Immunization coverage (children who were fully vaccinated).

3.6.2. Independent variable

Explanatory variables related to socio-demography

- Age of the Mother
- educational status
- Marital status
- Religion
- Monthly family income in Eth.birr
- residence
- Ethnicity

Explanatory variables related maternal and child characteristics

- Place of delivery
- ANC follow up &TT vaccination
- Birth order of the child
- Sex of the child

Explanatory variable related to health system

- Accessibility(distance)
- Availability (Vaccine)

3.7. Operational definition

Fully vaccinated: A child 12-23 months old who was received one dose of BCG three dose of pentavalent, three dose of OPV, three dose of pneumonia and one dose of measles before his/her first birth day and measured by vaccination card plus mothers recall.

3.8. Data collection procedures and Data quality control

3.8.1. Data collection tools

Pre-test and structured questionnaire was prepared in English version then it was translated to the local language which is Amharic was used to collect data via interview technique. Face to face interview with mothers at the target households was conducted using a structured questionnaire and the relevant data about immunization was collected from mother or the care giver of the eligible child residing in the selected households in Lay Armacheho District by using interview administered questionnaire which consists of open and close ended questions, and observation of BCG scar and review of the immunization card of the child (child immunization status was obtained from an immunization card of the child).When the card is not available the mother was asked orally about the child immunization history by the data collector. The data was collected by fourteen diploma nursing health workers recruited from District health workers.

3.8.2. Data quality control

The quality of the data was controlled by giving two day training to the data collectors about the overall data collection techniques. Pre-test was in one kebele which was not actually included in the study using 5% of the total questionnaire so that the necessary corrective modifications was made soon based on the outcome of the pre-test before the actual data collection was commenced and daily close supervision of the data collectors was maintained by crosschecking the information containing in 5% of the daily field questionnaires with the information of their respective respondents. The collected data was checked out for the completeness, accuracy and clarity by the

principal investigators. The principal investigator and Supervisors were assigned to lead the data collection, supervision and check the data completeness and consistency of the questionnaire.

3.8.3 Data processing and analysis

Coding variables and data collected on questionnaire was entered in to Epi info version 7 and error data was clean up. Then Statistical analysis was carried out in SPSS version 20 and child immunization status was categorized in to two

1) Fully immunized children

2) Not fully immunized children who missed any dose of the vaccine. Descriptive statistics, Bivarite and multivariate analysis was carried out to compute frequency, percentage and relevant association between factors and fully immunization status of children. All variables that were found to be significant at p value 0.2 in the bivarite analysis were entered in to multiple logistic regression model. Finally back ward stepwise regression method was used and those variables significant at p value 0.05 was considered statistical significance.

4. ETHICAL CONSIDERATION

Ethical clearance was obtained from the ethical review board of Institution of Public Health university of Gondar. Communication with the different official administrators was made through formal letter obtained from the University of Gondar. Supporting letter was also being obtained from Lay Armacheho District administrative office. After the objective and purpose of the study had been informed verbal consent was obtained from each study participant. Participants were also informed that participation was on voluntary basis and they can stop or leave from the participation at any time if they were not comfortable about the questionnaire. To keep confidentiality of any information provided by study subjects, the data collection procedure was anonymous and keeping their privacy during the interview by interviewing them alone.

5. DISSMINATION OF FINDINGS

The findings of the study will be forwarded to lay Armacheho District health office, university of Gondar, school of public health and for these governmental and nongovernmental organizations interested in the subject matter. Result of this study will also be submitted to Ethiopia biomedical journal in order to become one of the candidates for scientific publication.

5. RESULTS

5.1. Socio-demographic characteristics of children and mothers

A total of 751 pairs mothers to children aged between 12-23 months old were interviewed from 7 kebeles with the response rate of 99.2%.The age of the respondents in this study was ranged from 18 to 46 with mean and median of 27.19 and 26 respectively. Half of the mothers were not able to read and write (50%).Majority of the respondents were married (91.3%),followed by divorced (6.7%) and the rest 2% were not married, separated and widowed. Based on their religion,89.3% were Orthodox and 10.7% were Muslim and 47.1% of the respondents had 2249 and less Ethiopian birr of monthly household income. Also, more than half of the respondents had less than 5 family members (58.9%).Regarding walking time to the nearest health facility about 42.7% of the respondents took less than 15 minutes. From the total children included in this study 51% were male and 49% were female children (table1).

Table 1: Socio-demographic characteristics of children and mothers in Lay-Armacheho District, North Gondar Zone, 2014(n=751)

Variables	count	%	Variables	count	%
Sex of children			Daily laborer	22	2.9
Male	384	51	Private enterprise	14	1.9
Female	367	49	Student	10	1.3
Age of the mothers					
<20	118	15.5	**Ethnicity**		
20-34	474	63.3	Amhara	347	46.2
35-49	159	21.2	Kemant	404	53.8
Educational status			**Religion**		
Not read and write	376	50.1	Orthodox	671	89.5
Read and write	14	1.9	Muslim	80	10.5
Grade 1-8	205	27.3	**Average monthly**		
Grade 9 and above	156	20.7	**Household income**		
Marital status			<=2249	354	47.1
Married	686	91.3	2250-3818	177	23.6
Divorced	50	6.7	>=3819	220	29.3
Not married	7	0.9	**Family size**		
Separated	5	0.7	<=4	442	58.9
Widowed	3	0.4	>=5	309	41.1
Mother's occupation			**Time take to reach**		
Farmer	21	2.8	**To the nearest HF**		
Housewife	608	81	<15 minutes	321	42.7
Gov.employ	37	4.9	15-30 minutes	218	29
Merchant	39	5.2	30-60 minutes	181	24.1
			>60 minutes	31	4.1

5.2. Maternal and children characteristics

About 77% of the mothers were attained ANC at least once during their pregnancy of the study children. Also about 35% were received three and above ANC service. In addition, 79.5% of mothers took one or more dose of TT vaccine (table2).

Table 2: Maternal and children characteristics in Lay Armacheho District, North Gondar Zone, 2014.

Variables	Count	%
Antenatal care		
Yes	582	77
No	169	23
NO-of antenatal taken(582)		
<=2	379	65
>=3	203	35
TT immunization		
Yes	597	79.5
No	154	20.5
NO-of TT received(630)		
<=2	239	38
>=3	391	62
Postnatal care		
Yes	218	29
No	533	71
No-of postnatal taken(218)		
<=2	122	56
>=3	96	44
Place of birth		
Health facility	241	32
Home	510	68
Birth order of the child		
First	267	35.6
Second	179	23.8
Third	94	12.5
Fourth and above	211	28.1

5.3. Mothers awareness on vaccine

A bout 99% of the respondents was heard vaccination. Majority of the respondents (91.3%) heard from health professional followed by these heard from radio (25.8%).from the total respondents about 27% said vaccination for child starts at birth and 73% they don't know the age at which the child begin vaccination(table3).

Table 3: Respondents awareness on vaccination in Lay Armacheho District, North Gondar Zone, 2014

Variables	Count	%	Variables	Count	%
Heard about vaccination			**Knowing the sessions needed for vaccination**		
Yes	745	99.2	Yes	307	40.9
No	6	0.8	No	444	59.1
Source of information on vaccination			**Responses on sessions needed**		
Health professional	686	66.8	once	4	0.5
Radio	194	18.9	twice	19	2.5
television	51	4.9	Three times	312	41.5
Friends	39	3.8	Five times	308	40.9
School	57	5.6	I don't know	108	14.4
Knowing when to start vaccination			**Knowing the age to complete vaccination**		
Yes	203	27	Yes	519	69
No	548	73	No	232	31
Responses on starting time for vaccination			**Response on time to complete for vaccination**		
Just after birth	203	27	9 months	519	69.1
One month later	492	65.4	One year	103	13.7
Any time	10	1.3	Five year	65	8.7
I don't know	46	6.2	I don't know	30	4
			Others	34	4.5

5.4. Vaccination coverage by card plus recall

From total, 76% of children were fully immunized based on vaccination card and mothers recall during the study period. About (85.5%) took OPV1 vaccine followed by BCG (81.4%).About 17(2.3%) children had not received any vaccination. Dropout rate was 5.2% for BCG to measles, 2.7% for Penta1 to Penta3 and 4.5% for PCV1 to PCV3 (figure3).

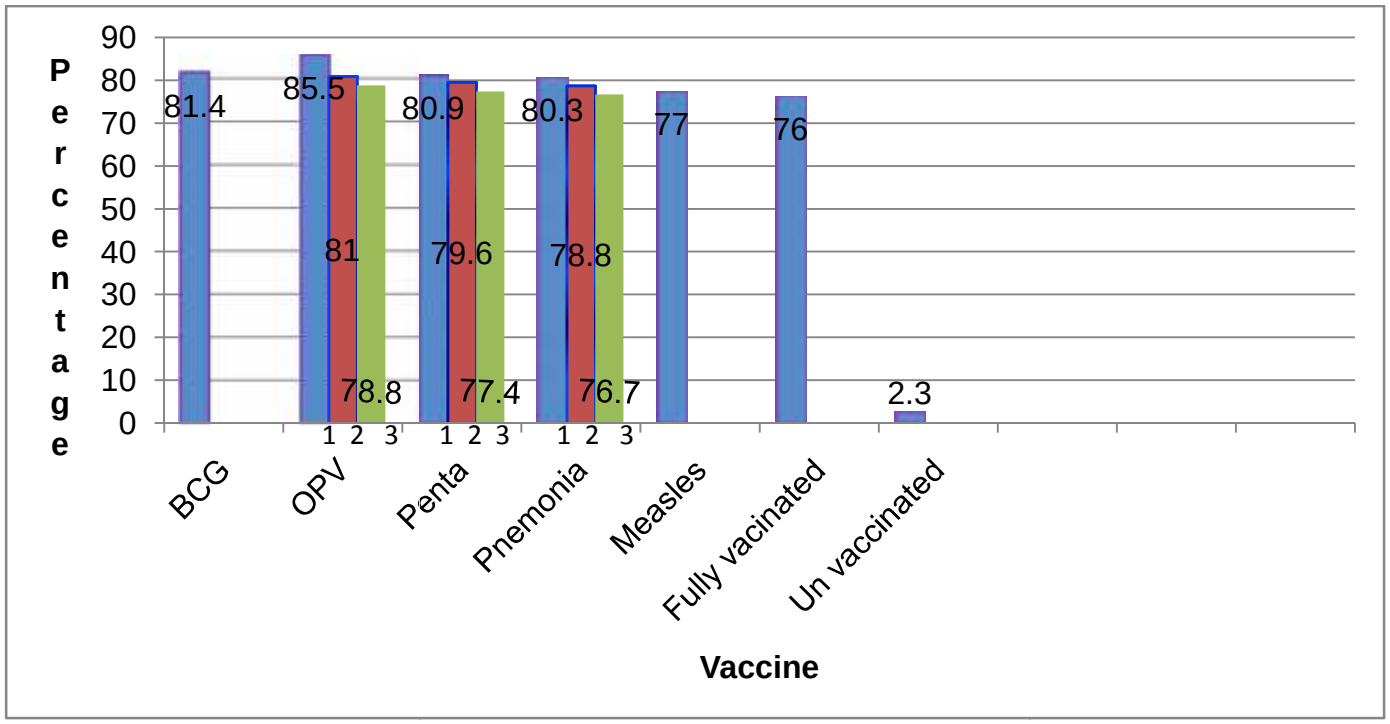

Figure 3: Vaccination coverage of children aged 12-23 months based on child vaccination card and mothers recall in Lay Armacheho District, North Gondar Zone, 2014.

Table 4: Vaccination Coverage of children aged 12-23 months based on child vaccination card and mothers recall, in Lay Armacheho District, North Gondar Zone, 2014.

Vaccine	Coverage by card		Coverage by recall		Coverage by card Plus recall	
	Count	%	Count	%	Count	%
BCG	228	30.4	383	50.9	611	81.4
OPV1	244	32.5	398	52.9	642	85.5
OPV2	234	31.2	376	50	610	81
OPV3	218	29	374	49.8	592	78.8
Penta1	237	31.6	371	49.4	608	80.9
Pneta2	230	30.6	368	49	598	79.6
Pneta3	216	28.8	365	48.6	581	77.4
Pnemonia1	212	28.2	391	52	603	80.3
Pnemonia2	202	26.9	390	51.9	592	78.8
Pnemonia3	191	25.4	388	51.7	576	76.7
Measles	189	25.2	390	51.9	579	77
Fully vaccinated	185	24.9	386	51.4	571	76

5.5. Reasons for not fully vaccinated

For those children who were not fully vaccinated mothers were asked reasons for not complete vaccination. Out of the total children who were not fully immunized, 24.9% of the mothers said that they were busy in their occupation and 22.3% of the respondents said that vaccination will be given in the future (table5).

Table 5: Reasons for children not fully vaccinated, in Lay Armacheho District, North Gondar Zone, 2014

Reasons	**Count**	**%**
Lack of awareness	10	4.6
Fear of side effects	35	16.1
Not knowing came back	9	4.1
Don't know time and place	7	3.2
busy	54	24.9
Will be given in the future	49	22.3
No vaccine in HF facility	16	7.4
Absence of vaccinators	14	6.5
Vaccination site was far	2	0.92
The child was sick	21	9.7

5.6. Factors associated with fully immunization status of children

Comparison between children fully immunized and those who didn't fully immunized and the association with factors assessed using logistic regression.

Bivariate analysis showed that, there was statistically significant association between Fully immunization status of children, educational status, Ethnicity, ANC follow up, ANC follow up session, TT immunization, TT follow up session, postnatal care, sex of the child, place of delivery, mothers who know the advantage of vaccination, mothers who know how many sessions needed to complete vaccination and know the age when the child to be fully immunized.

In multivariate analysis there was statistically significant association between full immunization status of children, residence, mothers who know how many sessions needed to complete vaccination, sex of the child, mothers who know the age when the child complete vaccination and mothers who took TT vaccination. The likelihood of becoming fully immunized among children who residence in urban were more likely to complete vaccination than rural residence [AOR 1.824(95%CI=1.150,2.895)].The likelihood of children to be fully immunized among mothers who know on number of sessions needed for vaccination were higher than those who did not know. [AOR=2.816(95%C1=1.898, 4.178)]. Moreover, coverage of full immunization status of children were higher among mothers who know the age at which the child become fully immunized than who did not know. [AOR=2.934(95%CI=2.020, 4.262)].Being male were more likely fully immunized than female [AOR=1.818(95%CI=1.267, 2.608)].Other associated factor with full immunization status of children were TT immunization status of the mothers. Mothers who took TT immunization showed that there were statistically significant association with children full immunization [AOR 1.669(95%CI=1.061, 2.628)].

Table 6: Bivarate and multivariate analysis for factors associated with full immunization status of children in Lay Armacheho District, North Gondar Zone, 2014.

Variables	Fully vaccinated		Odd ratio(95%CI)	
	Yes	no	Crude OR	Adjusted OR
Education status				
Not read & writ	245(73.1%)	90(26.9%)	1	
Read &write	33(57.9%)	24(42.1%)	**0.505(0.283,0.901)***	****
Grade 1-8	164(80.4%)	40(19.6%)	1.506(0.988,2.296)	****
Grade 9 &above	129(83.2)	26(16.8%)	**1.823(1.121,2.962)***	****
Religion				
Orthodox	516(76.9%)	155(23.1%)	1	****
Muslim	55(68.8%)	25(31.2%)	0.661(0.399,1.096)	****
Ethnicity				
Amhara	251(72.3%)	96(27.7%)	1	
Kemant	320(79.2%)	84(20.8%)	**1.457(1.041,2.039)***	****
Residence				
Urban	138(81.2%)	32(18.8%)	1.474(0.961,2.260)	**1.824(1.150,2.895)***
Rural	433(74.5%)	148(25.5%)	1	1
Gender				
Male	310(80.7%)	74(19.3%)	**1.701(1.212,2.389)***	**1.818(1.267,2.608)***
Female	261(71.7%)	106(28.9%)	1	1
know when to start vaccination				
Yes	161(79.3%)	42(20.7%)	1.290(0.873,1.907)	****
No	410(74.8%)	138(25.2%)	1	
Know how many Session needed				
Yes	259(84.4%)	48(15.6%)	**2.283(1.578,3.302)***	**2.816(1.898,4.178)***
No	312(70.3%)	132(29.7%)	1	1
Know when to complete vaccination				
Yes	422(81.3%)	97(18.7%)	**2.423(1.712,3.431)***	**2.934(2.020,4.262)***
No	149(64.2%)	83(35.8%)	1	1

Place of delivery				
Health institution	198(82.2%)	43(17.8%)	**1.691(1.153,2.482)***	****
Home	373(73.1%)	137(26.9%)	1	
TT immunization				
Yes	493(78.3%)	137(21.7%)	**1.984(1.307,3.012)***	**1.669(1.061,2.628)***
No	78(64.5%)	43(35.5%)	1	1
Antenatal care				
Yes	453(77.8%)	129(22.2%)	**1.518(1.036,2.224)***	****
No	118(69.8%)	51(30.2%)	1	1
Postnatal care				
Yes	176(80.7%)	42(19.3%)	**1.464(0.993,2.159)***	****
No	395(74.1%)	138(25.9%)	1	
Round of TT				
None	106(68.8%)	48(31.2%)	1	
1-2	179(74.9%)	60(25.1%)	1.351(0.862,2.117)	****
>=3	286(79.9%)	72(20.1%)	**1.799(1.173,2.759)***	****
Round of ANC				
None	118(69.8%)	51(30.2%)	1	
1-2	119(77.3%)	35(22.7%)	1.469(0.891,2.423)	****
>=3	334(78%)	94(22%)	**1.536(1.029,2.292)***	****
Round of PNC				
None	395(74.1%)	138(25.9%)	1	
1-2	98(80.3%)	24(19.7%)	1.427(0.877,2.321)	****
>=3	78(81.2%)	18(18.8%)	1.514(0.875,2.619)	****

Note: 1.00=Reference * =p<=0.05(significance) ****=not significance

6. DISCUSION

This study was focused on assessment of immunization coverage and associated factors among children aged between 12-23 months living in selected 7 kebeles of Lay Armacheho district, North Gondar Zone. The collected information on vaccination coverage was based on vaccination card and mothers recall.

This study found that immunization coverage in Lay Armacheho District was BCG (81.4%),OPV1(85.5%),OPV2(81%),OPV3(78.8%),penta1(80.9%),pent2(79.6%),penta3(78.7%),PCV1(80.3%),PCV2(78.8%),PCV3(76.7%),measles(77%) and full Immunization coverage (76%) which was based on cards and mothers recall. However, OPV vaccine and pentavalent vaccine given each other with similar EPI schedule OPV coverage was slightly higher than the pentavalent vaccine coverage which is due to the fact that usually national supplement immunization campaigns apply on measles and OPV vaccination. While, High coverage of BCG indicates that since, it is gateway for EPI schedule and given when mother is in contact with health care for delivery. Moreover, Dropout rate of BCG to measles was higher than dropout rate of pentavalent1 to pentavalent3 and PCV1 to PCV3.Because of the long interval between the third dose of pentavalent and measles a number of children do not return for measles vaccine and this make the coverage rate for this antigen to be lower than others in keeping with the reported pattern. When we compare with other studies like EDHS 2011 and Ambo Woreda, Southern Ethiopia, this study result is higher. This indicates the study area may be more accessible in different factors than Ambo woreda. But this study showed that full vaccination coverage is lower than and may be inadequate to meet the targets set by the WHO and UNICEF to achieve at least 90% vaccination coverage by 2015.The lower the result than the targets set coverage observed in this study reinforces the need for continuous staff motivation, regular supervision, and continuous monitoring and evaluation to detect declines in vaccination coverage very early. This Sharpe decline in coverage rate from BCG (81.4%) at birth, to measles (77%) and the proportion that was fully immunized (76%) indicating that many of the children were lost to follow up in later months and some (who take the later antigens) skip some of the

vaccines. This type of problem was confirmed from those children who had vaccination card at the time of data collection.

The difficulty in ensuring fully immunized children was reported among study participants. These reasons include; busy (lack of time by mothers), believe vaccination will be given in the future, fear of side effects the child was ill, no vaccine in the health facility, and unawareness that the child was due for another vaccine. Similar findings have been reported in other study(1, 17)

6.1 Factors associated with full immunization status of children

Age of the mothers, average monthly income of the households, family size, number of children ever born by mothers, religion, occupational status of the mothers, marital status of the mothers, no association with full immunization status in bivarate and multivariate analysis. But Urban residence were more likely to be fully immunized their children than rural residence. This result is in line with study done in Kenya(21). Studies from another place indicates that age of the mother is an important factor for child to be fully immunized and showed that mothers in the middle age group were more likely to fully immunize their children than the youngest and oldest age group. But in this study there is no significant difference in immunization status of children among those whose mothers were middle age group or youngest and oldest age group. This is consistent with findings from other studies(18).

Studies from Bangladesh and Kenya also showed that income, family size and occupational status of the mothers were an important factors for children immunization status(18). A case control study conducted in Wanago Woreda, Southern Ethiopia indicated that monthly household income was significantly associated with children defaulting from immunization(17).

Moreover, mother who had attained TT injection was more likely to fully immunize their children than who did not. The possible explanation includes parental care increases the chance that mother would subsequently access health care service for the child. This study had consistence result with study done in Bangladesh(18).Studies from

Kenya showed that antenatal care interventions are an opportunity to reach pregnant mothers with messages and ANC follow up mothers were more likely to vaccinate their children than who did not.(21).This also did not have significant association in this study. Mothers who know correctly the vaccination sessions needed were more likely to be fully immunized their children than who did not know and those mothers who know correctly the age when the children complete vaccination were more likely to be fully immunized their children than who did not know. This study has similar result study done in Ambo woreda, southern Ethiopia(1).

Children characteristics with full immunization status were assessed. After adjusting all variables gender of the child showed an association with full immunization status. Female children were less likely to be fully immunized than male children. This shows their sexual discrimination between male and female children. this study had similar result with study done in Ethiopia and Bangladesh in which female children were less likely to be fully immunized than male children(1, 18).Whereas, another characteristics of children like place of birth and birth order were not show a significant association with full immunization. Another study from Kenya showed that health institution born children were more likely to be fully vaccinated than home born children(11).Having more children may cause resource constraints which have negative effects on health care utilization and children with greater birth order were less likely to be fully immunized(18).But, in this study birth order and place of birth was not show a significant association with full immunization status of the children.

7. LIMITATION OF THE STUDY

- This type of study may have recall bias.
- Cross-sectional study which simultaneously evaluates variables of the effect of interest and their associated factors should be emphasized. Thus it is not possible to identify case effect relationship of outcome variable and associated factors.

8. CONCLUSION

- Vaccination coverage was low among children aged 12-23 months in lay Armacheho District.
- In addition may be inadequate to meet the targets set by the WHO and UNICEF to achieve at least 90% vaccination coverage by 2015.
- About 76% children were fully immunized and 24% of the study children were not fully immunization. Hence, it is important to maintain and increase current vaccination levels.

- Mothers experiencing TT immunization, gender of the childe, residence, mother who know correctly the number of sessions needed and the age at which the child complete full vaccinations were factors associated with full immunization status of children.

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9. RECOMMENDATION

- Supervising and monitoring rural residence in routine and supplement immunization activities.
- Appropriate vaccination time and supplement immunization activities should be arranged and planned for selected area to minimize children defaulting from routine immunization because of mothers/caretakers who are busy and inaccessible in routine vaccination days.
- Sufficient information should be provided to rural women, which will encourage them to seek immunization at the appropriate age of the child
- Health extension workers should have rigorous follow up programe and should have sent reminders to default parents until their children reach fully vaccinated
- Health development army should promote women awareness at household level on immunization program, children starting age, number of session needed and when children become fully immunized.

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11. ANNEX

Annex-1: information sheet and consent form

Hello! My name is……I am here on behalf of Melkamu Beyene Kassahune, student of the school of public health in the university of Gondar. He is conducting a research for the partial full fulfillment of second degree on Assessment of Immunization Coverage and associated factors. He has received permission from school of public health at university of Gondar, District health office and respective kebele administrators to conduct this study.

The objective of this study is to assess immunization coverage and to identify associated factors among children 12-23 months of age. You were selected for the study because you are mother of the study group with the hope that you will cooperate with us. We are kindly requesting you to answer the questions that we have prepared for you.

We assure all information gathered during the course of the study will be kept completely confidential. All the information that you are going to deliver to us will be coded for anonymity. Only the principal investigator and the research assistants collecting the data will have access to the data.

Would you be willing to participate? Yes……..1 No……2

Having been well explained and informed of the intensions and benefits of the study, I voluntarily consent to participate in the study.

Respondent's signature. Date

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Interviewer name ---------- sign. ----------Date----------

Title of the research project

Assessment of immunization coverage and associated factors in Lay Armacheho woreda North Gondar zone, North West Ethiopia.

Name of principal investigator: Melkamu Beyene Kassahun

Name of the organization: Gondar college of Medicine and health science, University of Gondar.

Introduction: this information sheet and consent form is prepared with the aim of explaining the research project that you are asking to join by the group of investigators. The main aim of the research project is to determine immunization coverage and associated factors. The research group includes fourteen trained diploma nurses, two supervisors, from district health office and two advisors from University of Gondar.

Purpose of the research project

The aim of this study is to determine immunization coverage and associated factors of children aged 12-23months residing in lay armacheho woreda .the results of this study will be used as a basis, especially in the study area, to design appropriate interventions programs to address the problem. In the paste, determination of immunization coverage and associated factors has not been conducted in the study area at all. So this study focuses in determining immunization coverage and associated factors, in Lay Armacheho woreda north Gondar zone, North West Ethiopia.

Procedure

As this study involves children aged 12-23months, you are selected to be one of the study participants if you are willing to take part in this study. You are selected for this study because you are mothers of childe aged 12-23months and permanent residents of this kebele.

In order to determine immunization coverage and associated factors, we kindly invite you to take part in our project. If you are willing to participate in our project we are so

happy for to participate in this study and we need you to clearly understand the aim of this study and to sign the consent form. Then you are kindly request to give your response to the data collectors.

For this questionnaire based study, study subjects are all children aged 12-23months who are living in this area and selected by sampling methods. All the response given by the participants and the result obtained will be kept confidentiality by using coding system whereby no one will have access to your response.

Risk and discomfort

by participating in this research project you may feel that it has some discomfort especially in wasting your time(a minimum of 25 minutes)but this may not be too much as you are one of the member of the community, so your response will help as an important input to show the gap and means to improve immunization coverage. There is no risk in participating in this research projects.

Benefits

If you are participate in this research project, there may not be direct benefit to you but your participation is likely to help us in showing the gap of immunization coverage and associated factors that help in resource allocation decision making.

Incentive/payments for participating

You will not be provided any incentives or payments to take part in this project.

Confidentiality

The information collected for this research project will kept confidential and information about you that will be collected by this study will be sorted in file, without your name, but a code number assigned to it and it will not be revealed to anyone except the principal investigator and assistants will be kept locked with key.

Rights to refusal

You have the full right to refuse from participating in this research. (You can choose not to response some or all the questions) and this will not affect you from getting any kind of health service. You have also the full right to leave from this study at any time you wish, without losing any of your right.

Person to contact

This research project will be reviewed and approved by the ethical committee of the University of Gondar. If you want to know more information you can contact the committee through the address below .if you have any question you have contact any of the following individuals and you may ask at any time you want.

1-Dr. Gashaw Andargie(PhD)

Mobile ---------- email----------

2-Mr.Alemayehu shimekie(MPH)

Mobile ---------- email----------

የመረጃና የፈቃደኝነት ማረጋገጫ ቅጽ

<u>የስምምነት ውል ቅጽ</u>

ጤና ይስጥልኝ ስሜ.....ይባላል፡፡እዚህ **የመጣሁት በጎንደር ዩኒቨርስቲ የህብረተሠብ ጤና አጠባበቅ ትምህርት ቤት ተማሪ የሆኑትን አቶ መልካሙ በየነ ካሳሁን ወክየ ነው** ፡፡እርሳቸው እድሜያቸው ከ12-23 ወራት በሆኑ ልጆች ላይ ስለክትባት ሽፋን እና በክትባት ሽፋን ላይ አወንታወይ ወይም አሉታወይ ተጽኖ ባላቸው ነገሮች ዙሪያ ምርመር/ጥናት እያካሄዱ ይገኛሉ፡፡ለዚህ ምርመር የሚሆን ፍቃድ ከጎንደር ዩኒቨርስቲ የህብረተሰብ ጤና አጠባበቅ **ት/ቤት**፡ከወረዳ ጤና ጽ/ቤት እንዲሁም ከቀበሌ አስተዳደሮች አግኝተዋል፡፡

የምርምሩ /ጥናት ዋና አላማ ዕድሜያቸው ከ12-23 ወራት በሆኑ ልጆች ላይ ስለክትባት ሽፋን ለማወቅ ነው፡፡ ርሰዎ ለዚህ ጥናት የተመረጡት ልጆዎ በዚህ የ*ዕ*ድሜ ክልል ውስጥ ስለሆነች/ስለሆነ በጥናቱ ለይ ይተባበሩናል ብለን ስላመን ነው ፡፡እኛ ለዚህ ጥናት የሚሆኑ ጥያቄወችን አዘጋጅተናል እርሰዎ እነዚህን ጥያቄወች በመመለስእንዲተባበሩን በአክብሮት እንጠየቃለን፡፡በዚህ ሂደት ውስጥ የሚሰበሰብ ማንኛውም አይነት መረጃ ሙሉ በሙሉ በሚስጢር የሚጠበቅ መሆኑን ልናረጋግጥለወት እንወዳለን፡፡እንዲሁም እርሰወ የሚሰጡን መረጃ ሌላ ሰው ሊያወቀው በማይችል መንገድ በሚስጢራዊ ቁጥር የተቀመጠ/የተመዘገበ ይሆናል፡፡ ከዋናው ተመራማሪ እና ከጥናቱ ረዳቶች በስተቀር ሌላ ማንኛውም ሰው ለሰጡት መረጃ ዕውቅና አይኖረውም፡፡

በዚህ ጥናት ለመሳተፍ ፈቃደኛ ነወት;

አወ.....1 አይደለሁም.....2

የጥናቱን ዓላማና ጥቅም በደንብ ተገንዝቤና አውቄ በዚህ ጥናት ለመሳተፍ በፈቃደኝነት ተስማምቻለሁ

ተሳታፊ ፊርማ ቀን

ቃለመጠይቅ አቅራቢ ፍርማ ቀን

....

Annex-3: Questionnaire (English and Amharic)

Questionnaire for assessment of vaccination coverage and associated factors of children 12-23 months

Instruction: introduce yourself and explain the aim of this research to the study participant, and for each question put the appropriate answer from the given choose (cod).

Name of the study kebele ----------Date----------

The number of households in this kebele: ----------house hold number----------

Name and signature of the data collector: ----------

PART-1.SOCIO-DEMOGRAPHICCHARACTERSTICS

S.NO		**Choice of response**
101	Age of mothers/care taker in years	----------
102	Marital status of the Mather /care taker	1.Married 2.Single/never 4.divoreced 5.widowed 6. separated
103	What is your educational level?	_____
104	What is your ethnic origin?	1-Amhara 2-Tigray 3-Orom 4-Others(specify)

105	What is your (mother) occupation?	1.farmer 2 .House wife 3.Government employee 4.merchant 5.daily laborer 6.private enterprise employ 7.Student	For more than one answer take the most
106	What is the average monthly income of the household?		Income by Type change in birr
107	What is the size of your family Including the mother and the father	_____	
108	Religion	1.Orthodox 2.Muslium 3.Protestant 4.Other specify	
109	Residence	1.Urba 2.Rural	
110	The gender of the child	1. Male 2. Female	
111	Birth order of the child	1.The first childe 2.The second childe 3.The third childe 4.four and above	
112	Child birth date	Date_____ Month_____ Year_____	

113	Total numbers of children ever born by mother	_____
114	Total number of children alive	_____

Part-2 maternal characteristics and associated factors

While you are asking the mother/care giver about immunization status of the study child consider the following instruction.

Date=record date from vaccination card

(Yes) 1=history from the mother the child was vaccinated

(No) 2=the child was note vaccinated

S.NO	Questions	Choice of response
201	Does the childe have vaccination card?	1.yes 2.no
202	Observe the type of vaccines the child received?	Date_ Month__ Year_
1	BCG	Date_ Month__ Year_
2	Opv1	
3	Opv2	
4	Opv3	
5	Pent1	
6	Penta2	
7	Pena3	
8	Pnemonia1	
9	Pnemonia2	
10	Pnemonia3	
13	Measles	
14	Fully vaccinated	
15	Un vaccinated at least one vaccine	

203

1	Was the child given BCG vaccine against tuberculosis that is an injection in the left shoulder that usually have sign /scar on it ?	1.yes 2.no
2	Was the child given Polio vaccine that is dropped in mouth?	1.yes 2.no
3	If yes, how many times the polio vaccine was given?	_____
4	Was the child given pentavalent vaccine, an injection given on thigh or buttocks?	1.yes 2.no
5	If yes, how many times the pentavalent vaccine given?	_____
6	Was the child given pneumonia vaccine, an injection given on thigh or buttocks?	1.yes 2.no
7	If yes, how many times the pneumonia vaccine given?	_____
8	Was the child given measles vaccine in the thigh or buttocks at age of 9months?	1.yes 2.no
204	Have you heard immunization	1.yes 2.no
205	Did you know the advantage of vaccination?	1.yes 2.no
206	If yes, mention the advantage of vaccination for the child?	1.to prevent disease 2.for specific disease 3.I don't know 4.others specify
207	Where did you heard about vaccine?	1.radio 2.telvision 3.frinds 4.school 5.health worker 6.others,specify____

208	How many vaccination sessions are needed for child to be fully vaccinated?	1.once 2.twice 3.three times 4.four times 5.five times 6 .don't know
209	Can you tell me the age at which the childe begins vaccination?	1.juste after birth 2.one month after birth 3.any time 4.after one year 5.I don't know
210	When the child should complete the vaccination?	_____
211	Do you think vaccination will make your child sick?	1.yes 2.no
212	Do you bring a sick child for vaccination?	1.yes 2.no
213	Was the child given immunization in campaign (which is not record on card)?	1.yes 2.no
214	Do you think your culture appreciated vaccination?	1.yes 2.no

Reason for not completing vaccination (Ask only those who did not fully immunized the vaccination).

What the reasons are for not fully immunized?

215	1.lack of awareness on the importance of vaccination 2.fear of side effects 3.not knowing back for the second ,and third vaccination 4.not knowing vaccination place and time 5.busy 6.will give vaccine in the future 7.no vaccine in the health facility 8.absenteesim (no vaccinators) 9.vaccination site was too far 10.the child was sick ,so was not taken to vaccination	Select appropriate answer (may be More than One answer)

PARTE-3-HEALTH SYSTEM RELATED FACTORS

S.NO	Questions	Choice of responses
301	Where was the place of delivery this child?	1.health facility 2.home 3.other specify_____
302	Did the mother take TT vaccine during her pregnancy of the study child	1.yes 2.no
303	How many times the mother take TT vaccine during her pregnancy of the study child	_____
304	Have you attained ANC during your last pregnancy?	1.yes 2.no
305	If yes, how many round you attained?	_____
306	Have you attained PNC after birth?	1.yes 2.no
307	If yes how many round did you attained?	_____
308	Is there any health institution near to you	1.yes 2.no
309	If yes, for ques.307.which types of health institution near?	1.health post 2.health center 3.hospital 4.private clinic
310	How many minutes it take to reach the health facilities?	_____

በጎንደር ዩኒቨርስቲ ህክምና ጤናሳይነስ ኮሌጅ ማህበረሰብ ጤና አጠባበው ኢንስቲትዩት

መመሪያ፡ለእያንዳንዱ ጥያቄ ከአማራጮች ውስጥ የተሰጠውን መልስ በማክበብ በተዘጋጀው የመልስ መጻፍያ ቦታ የተከበበውን ቁጥር/ኮድ ጻፍ/ፊ.

ክፍል አንድ፡የግለሰብ ማህበራዊና ዲሞግራፊያዊ መረጃ

100	ጥያቄ	አማራጭ መልሶች
101	እድሜዎት ስንት ነው?	_____
102	የጋብቻ ሁኔታ	1.ያላገባች 2.ባለትዳር 3.የተፋታች 4.የተለያዩ 5.የሞተባት
103	ያጠናቀቁት ክፊል ስንተኛ ነው?	_____
104	ብሄረወ ምንድን ነው?	1.አማራ 2.ትገሬ 3.ኦሮሞ 4.ሌላ ይገለጽ
105	ዋነኛ ስራዎ ምንድን ነው?	1.አርሶ አደር 2.የቤት እመቤት 3.ተቀጣሪ ለመንግስት 4.ነጋዴ 5.የቀን ስራ 6.በግል ድረጅት ያላት 7.ተማሪ
106	ጠቅላላ ወርሃዊ የቤተሰብ ገቢ ስንት? ነው(በአይነት ከነገሩ ወደ ብር ተቀይሮ ይሞላ)	_____
107	ጠቅላላ የቤተሰብ ብዛት ስንት ነው?	_____
108	የመን ሀይማኖት ተከታይ ነወት?	1.ኦርቶዶክስ 2.ሙስሊም 3.ፕሮቴስታንት 4.ሌላ ይገለጽ
109	የሚኖሩበት ቦታ የት ነው?	1.ከተማ 2.ገጠር
110	የህጻኑ/ኗ ጾታ?	1.ወንድ 2.ሴት
111	ህጻኑ/ኗ ስንተኛ ልጆወት ነው?	1.መጀመሪያ 2.ሁለተኛ 3.ሶስተኛ 4.አራተኛና ከዝያ በላይ

112	ዕድሜው ከ12-23ወር ለሆነው ህጻን የተወለደበት	ቀን____ ወር_____ ዓመት_____
113	ጠቅላላ በህይወት የተወለዱ ልጆች ብዛት?	_____

ክፍል 2-ከህጻኑ እናት ጋር ተያያዥነት ያላቸው ጥያቄወች

201	የክትባት መከታተያ ካርድ አለወት?		1.አወ 2.የለም	አወ ከሆነ ካርዱን በማየት የሚከተለውን ሙሉ፣የለም ከሆነ ጥያቄ.203ን ይመልከቱ
202	አወ ለመለሱ ካርዱን በመመልከት ይሙሉ			
1	ቢሲጅ	ቀን	ወር	አመት
2	ኦፒቪ1			
3	ኦፒቪ2			
4	ኦፒቪ3			
5	ፔንታ1			
6	ፔንታ2			
7	ፔንታ3			
8	ኒሞኒያ1			
9	ኒሞኒያ2			
10	ኒሞኒያ3			
13	ኩፍኝ (ሚዝል)			
14	ሙሉ ክትባት ወስዷል/ለች ምንም አይነት ክትባት ያልወሰደ/ች	አወ/የለም		

203	ካርድ ለሌላቸው በቃል በመጠየቅ ሚሞላ		
1	ልጁ/ቷ በቀኝ ክንድ ላይ የሚሰጥ ቢሲጂ ክትባት ወስዷል/ለች?	1.አወ 2.ለም	
2	ልጁ በአፉ ሚሰጥ የፖሊዮ ክትባት ወስዷል ወይ?	1.አወ 2.የለም	
3	አወ ከሆነ ስንት ዙር የፖሊዮ ክትባት ተሰጠው?	……..	
4	ልጁ በአፉ የሚሰጥ የሮታ ክትባት ወስዷል?	1.አወ 2.የለም	
5	አወ ከሆነ ስንት ዙር የሮታ ክትባት ተሰተው?	……..	
6	ልጁ/ቷ በታፋ ላይ የሚሰጥ የትክትክ፣ዘጊ አናዳ፡ መንጋጋ ቆልፍ ክትባት ወስዷል/ለች?	1.አወ 2.የለም	
7	አወ ከሆነ ስንት ዙር ተሰጠው	……	
8	ልጁ/ቷ በታፋ ላይ የሚሰጥ የሳንባ ምች ክትባት ተሰጥቶታል/ቷታል?	1.አወ 2.የለም	

9	አወ ከሆነ ስንት ዙር ?	…….	
10	ህጻኑ በዘጠነኛ ወሩ የኩፍኝ ክትባት ወስዷል?	1.አወ 2.የለም	
11	ሙሉ ክትባት ወስዷል/ለች	1.አወ 2.የለም	

204	ስለክትባት ሰምተው የውቃሉ?	1.አወ…… 2የለም……..	
205	ክትባት የሚሰጠውን ጥቅም ያውቃሉ?	1.አወ 2.የለም	
206	አወ ለመለሱ ክትባት ለህጻኑ የሚሰጠውን ጥቅም ቢነግሩኝ?	1.የተለያዩ በሽታወችን ለመከላከል 2.አንድ በሽታ ለመከላከል 3.አላውቀውም 4.ሌላየገለጸ	
207	አወ ለመለሱ ከየት ሰሙት?	1.ከሬድዮ 2.ከቴሌቪዥን 3.ከጓደኛ 4.ከ ትምህረት ቤት 5.ከ ጤና ባለሞያ 6-ሌላ ይገለጽ	
208	ህጻን ምን ያህል ዙር እንደሚከተብ ቢነግሩኝ?	1.አንድ ጊዜ 2.ሁለት ገዜ 3.ሶስት ጊዜ 4.አመስት ጊዜ 5.አለውቅም	
209	የመጀመሪ ክትባት ለህጻኑ የሚሰጠው መቸ ነው?	1.እንደተወለደ 2.ከአንድ ወር በኃላ 3.በማንኛውም ጊዜ 4.ከአንድአመት በኃላ 5.አለውቅም	
210	ህጻናት በስተኛው አመታቸው ክትባት የጠናቃቃሉ?	_____	
211	ክትባት ለሌላ በሽታ ጋልጣል ብለው ያስባሉ?	1.አወ 2.የለም	
212	ህጻኑ ቢታመም ለክትባት ይወስዱታል?	1.አወ 2.የለም	
213	በዘመቻ በሚደረግበት ወቀት ክትባት ህጻኑ ተከትቦል?	1.አወ 2.የለም	
214	የአካባቢው ባህል ክትባት ያበረታታል?	1.አወ 2.የለም	

ክትባት ላቋረጡ ህጻናት የሚጠየቅ

ህጻኑ/ና ለምን ሙሉ ክትባት እንዳለወሰዱ(ጀምረው እንዳልጨረሱ) እናትየዎን በመጠየቅ ከተዘረዘሩት ውስጥ አክብ/ቢ

215	ህጻኑ/ኗ ሙሉ ክትባት ያልወሰዱበት መክኒያት ሊነግሩን ይችላሉ?	1.የክትባትን ጥቅም ባለማወቅ 2.የጎንዮሽ ጉዳት በመፍራት 3. ለሁለተኛ ወይም ለሶስተኛ ጊዜ ክትባት እንደሚሰጥ ስለማላውቅ 4.ክትባት የሚሰጥበትን ጊዜና ቦታ ስለማለውቅ 5.ስራ ስለሚበዛበኝ 6-በቀጣይ ጊዜ ይሳጠዎል በማለት 7.ጤና ተቋሙ ላይ ክትባት መድሀኒት ባለመኖሩ 8-የህክምና ባለሞያወች ስለማይገኙ 9.ክትባት የሚሰጥበት ተቋም በመራቁ 10.ህጻኑ ታሞ ስለነበር	

ክፍል 3፡ከጤና ተቋማት ጋር ተያያዝነት ያላቸው ነገሮች

301	ህጻኑ የተወለደበት/ችበት ቦታ?	1.በጤና ተቋም 2.በቤት 3.ሌላቦት	
302	የቴታነስ ክትባት ተከትቧል/ለች?	1.አወ 2.የለም	
303	አወ ከሆነ ለስነተኛ ጊዜ?	1.ለአንደኛ 2.ለሁለተኛ 3.ለሶስተኛ 4.ለአራተኛ 5.ለአመስተኛ	
304	የመጨረሻ ልጀወን ሲወልዱ ቅድመ ወሊድ የህክምና ክትትል አድገዎል?	1.አወ 2.ለም	
305	በ304 ላይ አወ ከሆነ ስንት ዙር ተከታተለዎል?	_____	
306	የመጨረሻ ልጀወን ሲወልዱ ድህረ ወሊድ ህክምና ክትተል አድረገዎል?	1.አወ 2.የለም	
307	በ306 ላይ አወ ከሆነ ስንት ዙር ተከታትለዎል?	_____	
308	የህክምና ተቋም በቅርብ ይገኛል?	1.አወ 2.የለም	
309	በ 308 ለይአወ ለመለሱ በቅረብ የሚገኘው የቱ ነው?	1.ጤና ኬላ 2.ጤና ጣቢያ 3.ሆስፒታል 4.የገል ክልኒክ	
310	በቅርብ ወደሚገኘው የህክምና ተቋም ለመድረስ ስንት(ሰአት) ደቂቃ ይፈጃል?	_____	

DECLARATION

I the undersigned, MPH student declare that this thesis is my original work in partial fulfillment of the requirement for the use degree of master of public health.

Name: Melkamu Beyene

Signature_____

Place of submission: Institution of Public Health, College of Medicine and Health Science, University of Gondar.

Date of submission_____

This thesis work has been submitted for examination with my approval as University advisors

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1. Dr.Gashaw Andargie(PhD)

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